

What is claimed is:

1. A method for reading a coded audio data file in an optical storage medium and buffering the audio data file to a buffer memory, said audio data file comprising a plurality of blocks which are stored sequentially in a plurality of storing units in said optical storage medium, each block divided into a subcode block and a corresponding main data block, said subcode block comprising a plurality of coded subcodes, said subcodes comprising an address for each corresponding block, said main data block correspondingly comprising said coded audio data, the method comprising following steps:
 - (a) designating a starting block where buffering starts, decoding via a subcode decoding procedure to obtain said subcodes in said subcode block, and searching for said starting block in said blocks in said optical storage medium;
 - (b) when said starting block is searched, triggering a main data decoding procedure to correspondingly decode said starting block and said main data blocks in later blocks, then sequentially buffering decoded audio data respectively in a plurality of corresponding buffer units in said buffer memory after performing decoding; and
 - (c) according to the timing when said main data decoding procedure is triggered, deciding the timing when said decoded subcodes should be buffered to said buffer memory, in order that said subcodes and corresponding audio data which belong to the same block before decoding can be buffered to the same buffer unit after respectively decoded.
2. The method of claim 1, wherein in the step (b), after said starting block is searched, a matching flag will be emitted to a subcode buffer controller and a main data buffer controller, so as to respectively trigger the later subcode decoding procedure of said subcode buffer controller and trigger said main data

decoding procedure of said main data buffer controller.

3. The method of claim 2, wherein at least one block is distanced between where said main data buffer controller receives said matching flag and where said main data buffer controller triggers said main data decoding procedure; the number of said distanced blocks is decided by the timing of triggering said main data decoding procedure.
4. The method of claim 2, wherein said starting block is searched by an address control unit, and said address control unit also emits said matching flag after searched said starting block.
5. The method of claim 1, wherein said buffer memory comprises said buffer unit to correspondingly store said decoded subcodes and audio data.
6. The method of claim 5, wherein each of said buffer unit comprises a subcode unit and a main data unit; said subcode unit and said main data unit both of them are used to respectively store the decoded subcodes and audio data.
7. The method of claim 6, wherein said buffer memory can be a DRAM.
8. The method of claim 1, wherein an optical storage device proceeds said method; said optical storage device connects to a computer host and receives a reading command from said computer host to proceed said method.
9. The method of claim 8, wherein the block which said reading command asks to read is defined as a target block, and said address control unit can decide the starting block via a starting block deciding procedure.
10. The method of claim 9, wherein said starting block deciding procedure lets the optical storage device first execute a normal reading and buffering procedures for once to check the number of blocks that distances between the subcodes and

the audio data stored in the buffer unit, and then the optical storage device counts the number of blocks back from the target block every time when reading said optical storage medium to decide the starting block.

- 5 11. A system for reading a coded audio data file in an optical storage medium and buffering the audio data file to a buffer memory, said audio data file comprising a plurality of blocks which are stored sequentially in a plurality of storing units in said optical storage medium, each block divided into a subcode block and a corresponding main data block, said subcode block comprising a plurality of coded subcodes, said subcodes comprising an address for each corresponding
- 10 block, said main data block correspondingly comprising coded audio data, the system comprising following elements:
- an address control unit, used for designating a starting block where buffering starts, decoding the blocks after the starting block via a subcode decoding procedure to obtain said subcodes in said subcode block, and searching
 - 15 for said starting block in said blocks in said optical storage medium;
 - a subcode buffer controller, used for continuously proceeding said subcode decoding procedure, after said starting block is searched, to correspondingly decode said subcode block in the blocks after said starting block, and sequentially buffering said decoded subcodes, after
 - 20 decoding performed, respectively in a plurality of corresponding buffer units in said buffer memory; and
 - a main data buffer controller, used for proceeding a main data decoding procedure, after said starting block is searched, to correspondingly decode said main data blocks in said starting block and the blocks after it,
 - 25 and sequentially buffering said decoded audio data respectively in said plurality of corresponding buffer units in said buffer memory.

12. The system of claim 11, wherein said address control unit decides the timing

when said decoded subcodes should be buffered to said buffer memory,
according to the timing when said main data decoding procedure is triggered, in
order that said subcode and corresponding audio data which belong to the same
block before decoding, after respectively decoded, can be buffered to the same
buffer unit.

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13. The system of claim 11, wherein after said starting block is searched, said
address control unit emits a matching flag to said subcode buffer controller and
said main data buffer controller, so as to respectively trigger the later subcode
decoding procedure of said subcode buffer controller and trigger said main data
decoding procedure of said main data buffer controllers.

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14. The system of claim 13, wherein at least one block is distanced between where
said main data buffer controller receives said matching flag and where said main
data buffer controller triggers said main data decoding procedure; the number of
said distanced blocks is decided by the timing to trigger said main data decoding
procedure.

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15. The system of claim 11, wherein said buffer memory comprises said buffer units
to correspondingly store said decoded subcodes and audio data.

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16. The system of claim 15, wherein each of said buffer unit comprises a subcode
unit and a main data unit; both of them are used to respectively store the
decoded subcodes and audio data.

17. The system of claim 11, wherein said system comprises an optical storage device
connects to a computer host and receives a reading command from said
computer host.

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18. The system of claim 17, wherein the block that said reading command asks to
read is defined as a target block, and the address control unit can decide the
starting block via a starting block deciding procedure.

19. The system of claim 18, wherein the starting block deciding procedure lets the optical storage device first execute a normal reading and buffering procedures for once to check the number of blocks that distances between the subcodes and the audio data stored in the buffer unit, and then the optical storage device
- 5 counts the number of blocks back from the target block every time when reading said optical storage medium to decide the starting block.
20. The system of claim 11, wherein said optical storage medium is a Compact Disc with digital-audio data format.